

Innovatech User Manual

# Predator



THE SURFACE PREPARATION SPECIALISTS

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Predator	

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# **INNOVATECH**

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**The Surface Preparation Specialists**

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## INTRODUCTION

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Innovatech Products and Equipment Company specializes in the manufacturing and distribution of surface preparation equipment and supplies. From our early origins as a flooring removal company, and a foundation based upon the success of our Terminator line of flooring removal machines, Innovatech has transformed itself into an industry leader over a twelve year period.

Our continued growth can be attributed to our pledge to offer only premium products, our commitment to stand behind what we sell, and a staff well known throughout the industry for their knowledge and commitment to our valued customers. Based on customer need, Innovatech has proudly diversified our offerings to include a complete line of surface preparation products including Shot Blasters, Scarifiers, Floor Grinders, Dust Collectors, Diamond Abrasives, and other products.

*NOTE: READ THIS MANUAL BEFORE YOU OPERATE OR SERVICE THE MACHINE.*

## DELIVERY

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Upon arrival, the following items should be included:

- Splash Guard
- Upper Belt
- Spanner Wrench
- Manual
- Warranty Card

*Splash Guard — #54-0014*



*Upper Belt Carrier — #13-0139*



*Spanner Wrench — #53-0029*



## GRINDER SPECIFICATIONS

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Dimensions Cutting Width: 32 Inches (812 mm)

Power: 3 ø 414 – 504 Volt

Dimensions: 57 x 33 x 52 Inches (145 x 83 x 139 cm)

Weight: 930 Pounds (421 kg)

Amperage: 25 (550 kg)

Motor: 15 Hp (11 kw)

Motor RPM: 0 – 1,760

Speed RPM Heads: 0 – 1,050

Water Tank Capacity: 18 Gallons (64 L)

Grinding Discs: 4 x 10.5 Inches (4 x 270 mm)

Torque: 77 Foot Pounds

## SAFETY WARNING

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1. Only persons who have received training are permitted to operate or repair the grinder.
2. Use personal safety equipment such as steel toe shoes, safety glasses, and ear plugs.
3. Do not use grinder in area where there is a risk of explosion or fire.
4. Do not start the machine with heads off the ground.
5. Make sure the splash guard is on before starting machine.
6. Before you start grinding, check the floor for bolts, large holes and uneven joints. Hitting these things can damage machine, tools, and cause personal injury.
7. Make sure all power supply is connected with the right voltage.
8. Use only cold water in water tank. Do not use chemicals in water tank.
9. When filling water tank, to avoid electrical hazards and injury, do not spill water onto the machine motor and electrical box.
10. Switch off the machine power before changing grinding tools.
11. Disconnect power supply before working or repairing machine.
12. Be very careful with rolling machine on any sloping floors or ramps. The machine can roll very quickly. Two people may be needed to handle and control the machine.
13. Use caution with removing the grinding tools after finished grinding. Tools can be very hot. Use gloves to remove the plates.
14. When grinding glues, epoxy paints, or coatings, leaving the machine down on floor could cause the head to stick to the floor. Always tip back machine as soon as the head comes to a complete stop.
15. Always store machine in a dry place.
16. Only use Innovatech recommended tooling.
17. The operator must never leave the machine unattended during operation.
18. When grinding dry, use a suitable vacuum to extract the dust.
19. Innovatech is not responsible for any off gassing of hazardous gas that is generated by grinding materials. It is the responsibility of the operator. Grinding floors containing asbestos is especially dangerous and can cause health problems. Contact your state or country for the proper way to handle it.

## CONTROLS AND FEATURES

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- A. Lamp light is red with power on. Ready use.
- B. Emergency Stop: Push down to stop. Pull up to restart.
- C. Forward and Reverse.
- D. Manual Speed Pot: Controls the rotation of the grinding head. Turn the knob clockwise to increase the speed and counter-clockwise to decrease the speed.

*NOTE: DO NOT USE THE EMERGENCY STOP BUTTON TO START THE MACHINE. THIS BUTTON IS DESIGNED FOR EMERGENCY USE ONLY.*



## OPERATION

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### **Before starting:**

1. Check the floor carefully and remove all bolts, nails, as well as any loose material that could get caught in the machine.
2. Fit the appropriate tools to the machine.
3. Fit splash guard to the right height.
4. Connect the power supply. Make sure you have all the phases. May have to check with volt meter.
5. If you are grinding dry, connect the appropriate vacuum and start vacuum before starting the grinder.

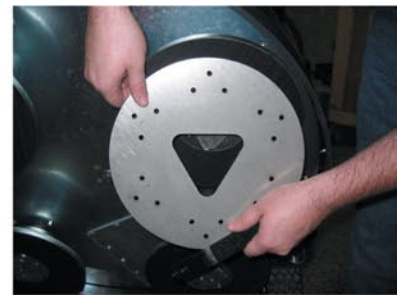
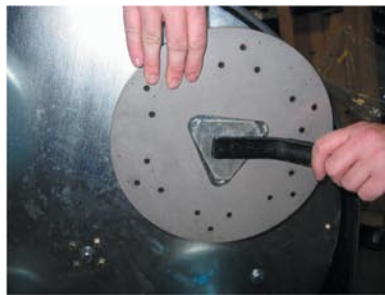
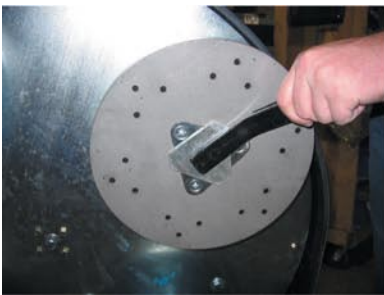
*NOTE: IF THE WRONG POWER IS SUPPLIED TO THE GRINDER, IT WILL DAMAGE THE ELECTRICAL COMPONENTS IN THE INVERTERS.*

### **Starting machine:**

1. Turn main power switch on side of power box to ON.
2. Turn forward or reverse switch left of right.
3. Turn manual speed pot up to get the heads turning for desired speed. (If heads do not move, you may have to lean on handle to reduce pressure on tools.
4. Always grip handle firmly when starting machine. The machine will always move from side to side with first start.
5. When finished with grinding, turn off machine and let the heads come to a complete stop before tilting back the machine.

### **Changing of Tools:**

1. Before working on the grinder, bring the motor to a total stop and disconnect power.
2. Tilt machine back on floor.
3. Use caution! Tools can be very hot from grinding. Use gloves.
4. Use special tool supplied to turn center of tool holder to remove tool plate.
5. Replace with new tool plate and turn to lock in place.
6. Lower machine back down and re-adjust splash guard is necessary. Working height of different tools varies depending on tools and wear.





## MAINTENANCE

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Clean machine after every use. To clean machine, use a low pressure water hose or air pressure. Do not use a high PSI pressure washer. This could force water into areas of the machine unintentionally and damage parts. A regular inspection of machine for wear and damage should be done on a regular basis. If any parts have been damaged or have excessive wear, they should be replaced. If belts (Upper or Lower) are in need of being replaced, please see separate instructions.

## WARRANTY

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INNOVATECH warrants to original retail purchaser of the equipment:

A. Limited Warranty. The equipment, when first delivered, will conform to the specifications set forth in the Owner's Manual and will be without defect in material or workmanship.

For a period of one (1) year after delivery to the original retail purchaser, or 500 clock hours of operation, whichever occurs first; or in the case of replacement parts other than belts, for a period of ninety (90) days after the part is installed or within the warranty period described above, whichever is later, if the original retail purchaser notifies INNOVATECH (either directly or through one of INNOVATECH's authorized dealers) of a defect in material or workmanship or of a non-conformity to the specifications, then, upon confirmation of the defect of non-conformity and confirmation that the defect or non-conformity is covered within these Limited Warranty conditions, INNOVATECH will, at its election and at its expense, either (i) repair or correct the defect and/or non-conformity, or (ii) replace the part.

B. Limitations. This Limited Warranty does not apply to damage caused by (i) misuse of the equipment including, with limitation, use of the wrong power source, striking an imbedded object such as a bolt, electrical outlet box, expansion joint or steel reinforcing rod; or (ii) unauthorized alteration, modification, repair or tampering; or (iii) use of replacement parts not supplied by INNOVATECH; or (iv) normal wear, discoloration, surface corrosion, deterioration of finishes or paint surfaces, or (v) other appearance deterioration caused primarily by use. INNOVATECH shall not be responsible and this Limited Warranty shall not apply to damage caused by improper maintenance or failure to inspect and maintain the equipment as recommended in the Owner's Manual.

C. Belts. The equipment, when shipped from the factory is equipped with a spare Upper Drive Belt and the Upper Drive Belt is, therefore, not a covered item under the terms of this Limited Warranty. The Lower Drive Belt is covered as set out at paragraph A., above, but for the period of six (6) months after delivery of 250 clock hours of operation, whichever occurs first.

D. Transportation. Purchaser will pay the cost of transporting defective or non-conforming parts to INNOVATECH and the cost of returning repaired or replacement parts to purchaser. Each party will safely package the parts it sends to the other in accordance with good commercial practice. If purchaser requests and INNOVATECH agrees, INNOVATECH may perform covered warranty work where the equipment is located. If INNOVATECH performs the work at the location, purchaser will pay the cost of business class transportation and good quality meals and lodging for INNOVATECH's technicians.

E. Abuse. INNOVATECH IS NOT RESPONSIBLE FOR DAMAGE, DEFECT, BREAKAGE OR MALFUNCTION OF THE EQUIPMENT THAT IS CAUSED BY ABUSE OR BY OPERATION OF THE EQUIPMENT IN A MANNER WHICH IS NOT RECOMMENDED OR APPROVED BY INNOVATECH.

F. Exclusive Warranty. EXCEPT AS IS EXPRESSLY SET OUT IN THIS LIMITED WARRANTY: (i) INNOVATECH MAKES NO PROMISE OR WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE EQUIPMENT; (ii) INNOVATECH MAKES NO PROMISE OR WARRANTY THAT THE EQUIPMENT IS FIT FOR ANY PARTICULAR PURPOSE; (iii) INNOVATECH WILL HAVE NO OBLIGATION OR LIABILITY TO THE PURCHASER OR TO ANY THIRD PARTY WITH FOR ANY DAMAGE CAUSED BY THE EQUIPMENT OR AS A RESULT OR CONSEQUENCE OF ANY CLAIMED DEFECT IN THE EQUIPMENT, ANY FAILURE TO WARN OR NOTIFY, OR ANY CLAIMED NON-CONFORMITY TO THE SPECIFICATIONS; AND (iv) PURCHASER WILL HAVE NO OTHER REMEDIES IN RESPECT OF SUCH DEFECT, NON-CONFORMITY, DAMAGE OR CONDITION EXCEPT THOSE SET OUT IN THIS LIMITED WARRANTY.

WITHOUT LIMITING THE FOREGOING, AND REGARDLESS OF THE CIRCUMSTANCES AND EVEN IF A REMEDY FAILS, INNOVATECH WILL HAVE NO LIABILITY TO THE PURCHASER OR TO ANY THIRD PARTY FOR (i) LOSS OF REVENUE OR PROFITS, OR (ii) FOR INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

## SERVICE AND ADJUSTMENT

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A warranty will not be valid unless a written claim authorization comes with returned parts. Innovatech will not provide for any shipping costs for items returned for repair. To obtain warranty repairs, buyer must prepay shipment and return all warranty parts to Innovatech. Damage occurring during shipment is deemed the responsibility of the carrier and claims should be made directly with such carrier.

It will be the customer's responsibility to pay for any non-warranty replacement parts plus the current hourly labor rates for any work done on any machine or part. Service is available upon request; call Innovatech for current labor rates.

## TROUBLESHOOTING

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1. Check to see if main power supply is on.
2. Check to see if emergency stop is pushed down; if it is, pull up.
3. Check to see if manual speed pot is turned up past 1.
4. Check all cords ends for loose connection.
5. Check fuse in distribution box with test meter.
6. Check to see if all phase are with right voltage (check with volt meter).
7. Check the converter connector cable to motor.
8. Check for error message on display of the converter.



## FAULTS WHICH CANNOT BE AUTOMATICALLY RESET

Faults which cannot be automatically reset are listed in the table below. To clear these faults:

1. Remove power from the drive controller.
2. Wait for the display to go off completely.
3. Determine the cause of the fault and correct it.
4. Re-apply power.

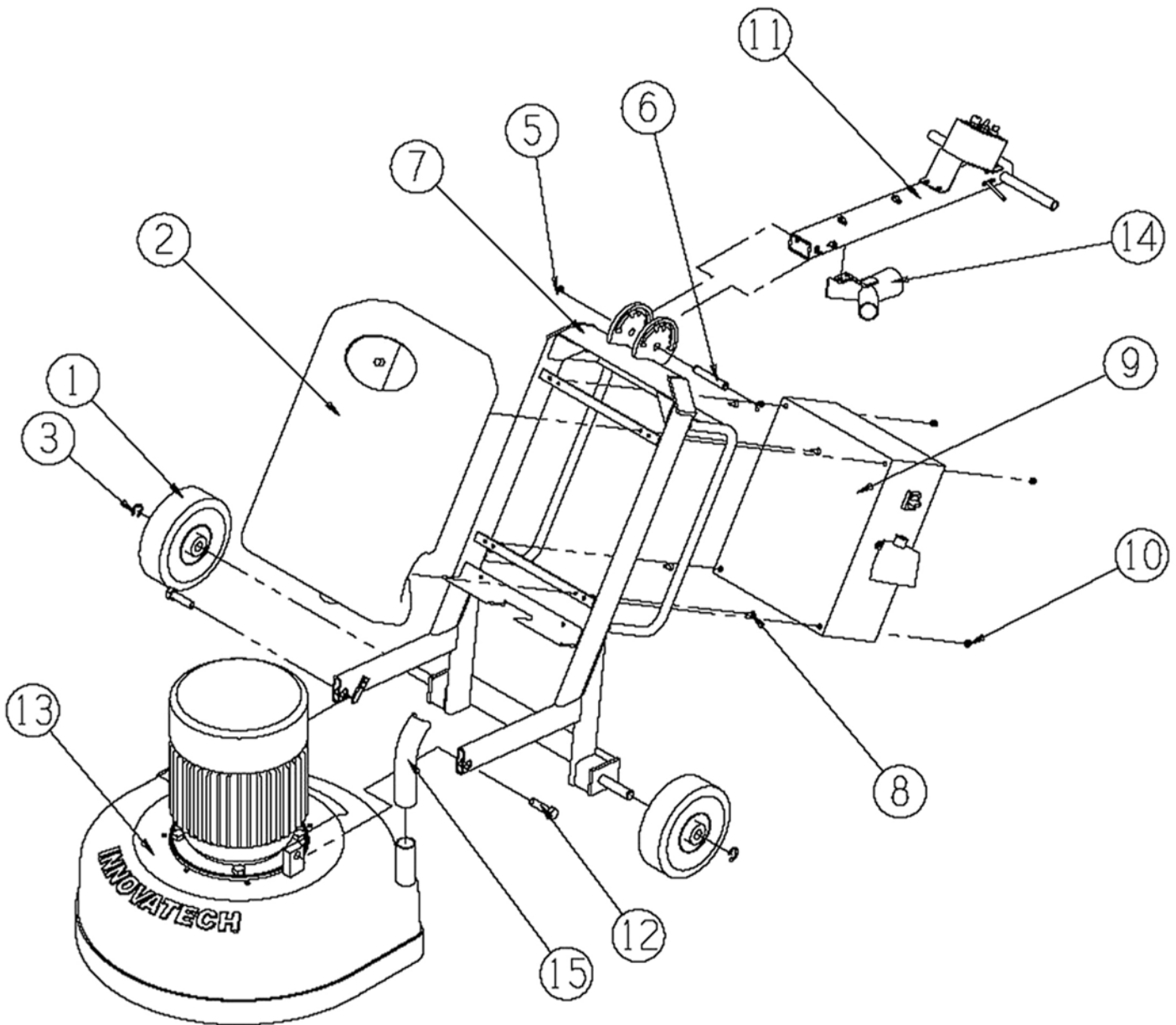
Fault	Probable Cause	Remedy
b L F Brake sequence	<ul style="list-style-type: none"> <li>• Brake release current not reached</li> </ul>	<ul style="list-style-type: none"> <li>• Check the drive controller and motor connections.</li> <li>• Check the motor windings.</li> </ul>
C r F Precharge circuit fault	<ul style="list-style-type: none"> <li>• Precharge circuit damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Reset the drive controller.</li> <li>• Replace the drive controller.</li> </ul>
I n F Internal fault	<ul style="list-style-type: none"> <li>• Internal fault</li> <li>• Internal connection fault</li> </ul>	<ul style="list-style-type: none"> <li>• Remove sources of electromagnetic interference.</li> <li>• Replace the drive controller.</li> </ul>
O C F Over current	<ul style="list-style-type: none"> <li>• Incorrect parameter settings in the Set- and drC- menus</li> <li>• Acceleration too rapid</li> <li>• Drive controller and/or motor undersized for load</li> <li>• Mechanical blockage</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the mechanical blockage.</li> </ul>
S C F Motor short circuit	<ul style="list-style-type: none"> <li>• Short circuit or grounding at the drive controller output</li> <li>• Significant ground leakage current at the drive controller output if several motors are connected in parallel</li> </ul>	<ul style="list-style-type: none"> <li>• Check the cable connecting the drive controller to the motor and check the motor insulation.</li> <li>• Reduce the switching frequency.</li> </ul>
S O F Over speed	<ul style="list-style-type: none"> <li>• Instability</li> <li>• Overhauling load</li> </ul>	<ul style="list-style-type: none"> <li>• Check the size of the motor, drive controller, and load.</li> </ul>
F n F Auto-Tuning fault	<ul style="list-style-type: none"> <li>• Motor or motor power not suitable for the drive controller</li> <li>• Motor not connected to the drive controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the presence of the motor during auto-tuning.</li> <li>• If a downstream contractor is being used, close it during auto-tuning.</li> </ul>
E P F External fault	<ul style="list-style-type: none"> <li>• User defined</li> </ul>	<ul style="list-style-type: none"> <li>• User defined</li> </ul>
L F F	<ul style="list-style-type: none"> <li>• Loss of the 4-20 mA reference on input A13</li> </ul>	<ul style="list-style-type: none"> <li>• Check the connection on input A13.</li> <li>• Loss of 4-20 mA follower</li> </ul>

## FAULTS WHICH CANNOT BE AUTOMATICALLY RESET

Fault	Probable Cause	Remedy
O b F Over voltage during deceleration	<ul style="list-style-type: none"> <li>• Braking too rapidly</li> <li>• Overhauling load</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the deceleration time.</li> </ul>
O H F Drive overload	<ul style="list-style-type: none"> <li>• Drive controller or ambient temperature is too high.</li> <li>• Continuous motor current load is too high.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the motor load, the drive controller ventilation, and the environment. Wait for the drive controller to cool before restarting.</li> </ul>
O L F Motor overload	<ul style="list-style-type: none"> <li>• Thermal trip due to prolonged motor overload</li> <li>• Motor power rating too low for the application</li> </ul>	<ul style="list-style-type: none"> <li>• Allow the motor to cool before restarting.</li> </ul>
O P F Motor phase failure	<ul style="list-style-type: none"> <li>• Loss of phase at drive controller output</li> <li>• Downstream contractor open</li> <li>• Motor not connected</li> <li>• Instability in the motor current</li> <li>• Drive controller oversized for motor</li> </ul>	<ul style="list-style-type: none"> <li>• Check the connections from the drive controller to the motor.</li> <li>• Test the drive controller on a low power motor or without a motor: set OPL to nO.</li> </ul>
O S F Over voltage during steady state operation or during acceleration	<ul style="list-style-type: none"> <li>• Line voltage too high</li> <li>• Line supply transients</li> </ul>	<ul style="list-style-type: none"> <li>• Check the line voltage. Compare with the drive controller nameplate rating.</li> <li>• Reset the drive controller.</li> </ul>
P H F Input phase failure	<ul style="list-style-type: none"> <li>• Input phase loss, blown fuse</li> <li>• Three-phase drive controller used on a single phase line supply</li> <li>• Input phase imbalance</li> <li>• Transient phase fault</li> </ul> <p><i>NOTE: This protection only operates with the drive controller running under load.</i></p>	<ul style="list-style-type: none"> <li>• Check the connections and the fuses.</li> <li>• Verify that the input power is correct.</li> <li>• Supply three-phase power if needed.</li> </ul>
C F F Configuration fault	<ul style="list-style-type: none"> <li>• The parameter configurations are not suited to the application.</li> </ul>	<ul style="list-style-type: none"> <li>• Restore the factory settings or load the backup configuration, if it is valid.</li> </ul>
U S F Under voltage	<ul style="list-style-type: none"> <li>• Line supply too low</li> <li>• Transient voltage dip</li> <li>• Damaged precharge resistor</li> </ul>	<ul style="list-style-type: none"> <li>• Check the line voltage.</li> <li>• Replace the drive controller.</li> </ul>

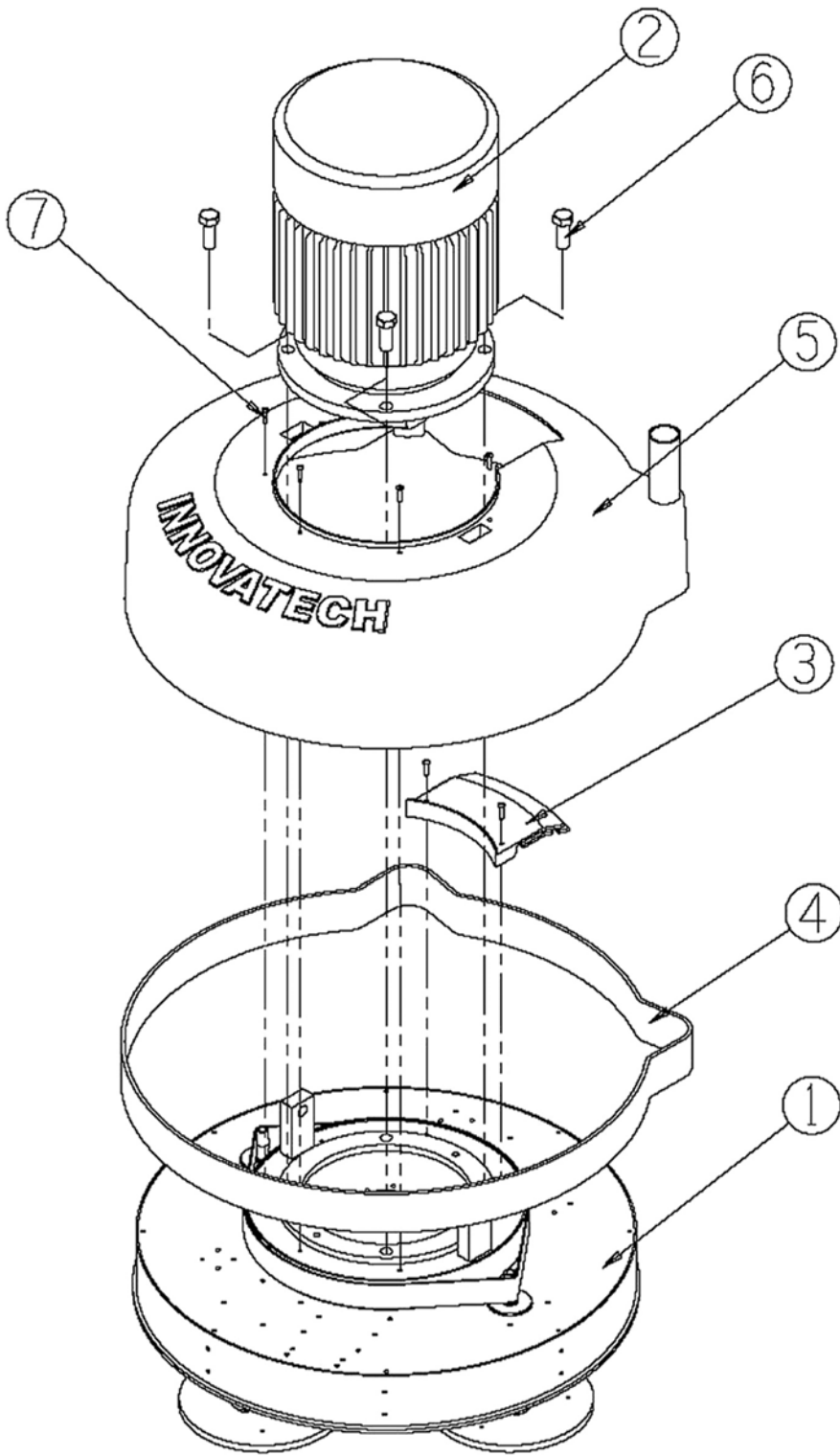
# SERVICE PARTS DIAGRAMS

## Grinder Final Assembly



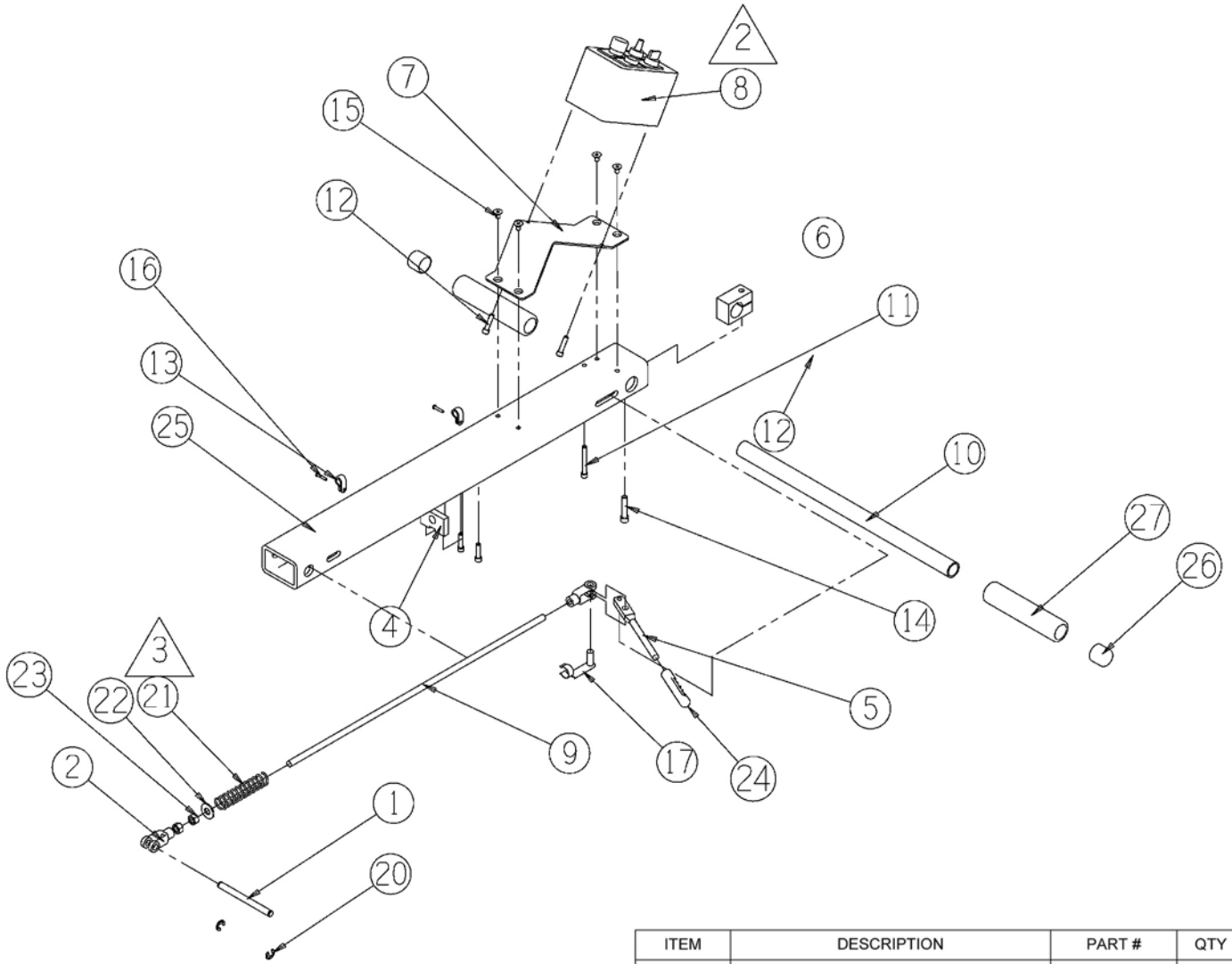
ITEM	DESCRIPTION	PART #	QTY
1	Wheel	54-0000	2
2	Water tank	54-0010	1
3	Linch pin, 3/16" dia. x 1-9/16"	13-0162	2
5	Retaining clip (E-style), 7/8"	13-0137	2
6	Handle hinge pin	51-0187	1
7	Frame	53-0020	1
8	Screw (flat head), 5/16 - 18 x 3/4	11-0086	4
9	Inverter box	23-0051	1
10	Nut (Nylock type), 3/8 - 16 threads	11-0026	4
11	Handle assembly	96-0030	1
12	Clevis pin, 5/8" dia. x 3" long	11-0045	2
13	Grinder head	96-0043	1
14	Vacuum tee	804-0434	1
15	Vacuum hose, 2" dia.	825-0003	2

## Grinder Head



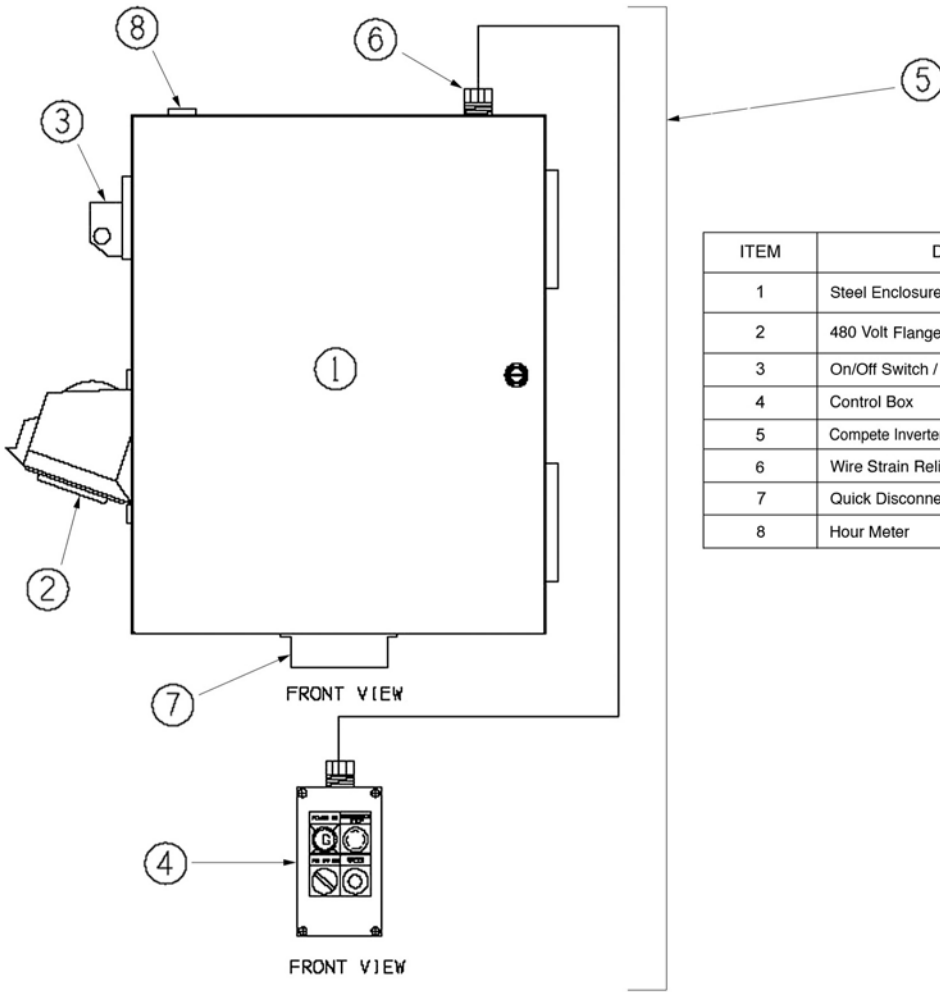
ITEM	DESCRIPTION	PART #	QTY
1	Drum drive assembly	96-0029	1
2	Motor, 15HP, 1800 RPM, 230/460V	23-0039	1
3	Grinder cover	54-0011	1
4	Splash guard	54-0014	1
5	Grinder cover assembly	96-0036	1
6	Bolt (hex head), 3/4 - 10 x 2	11-0160	4
7	Screw (hex head), 1/4 - 20 x 1-1/4	11-0159	7

## Grinder Handle



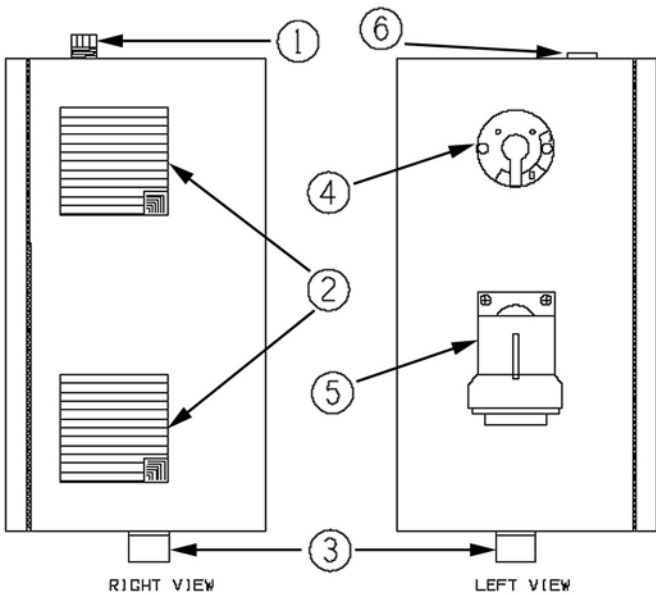
ITEM	DESCRIPTION	PART #	QTY
1	Handle lock rod	51-0173	1
2	Yoke end	13-0145	2
3	Handle	51-0158	1
4	Spring tension block	51-0174	1
5	Quick change lever	51-0170	1
6	Handle grip clamp	51-0186	1
7	Control box mount	52-0031	1
8	[Power] control box	23-0052	1
9	Threaded rod, 3/8 - 24 threads x 21-3/4" long	13-0146	1
10	Handle grip	51-0169	1
11	Screw (socket head cap), 1/4 - 20 x 2"	11-0158	1
12	Screw (socket head cap), 1/4 - 20 x 1"	11-0156	4
13	Cable strap, 1/2" dia.	13-0151	2
14	Screw (socket head cap), 3/8 - 16 x 1-1/2"	11-0157	1
15	Screw (flat head socket), 1/4 - 20 x 1/4"	11-0154	2
16	Screw (button head socket), #8 - 32 x 3/4"	11-0155	1
17	Clevis spring pin	13-0147	1
20	Retaining ring (E-style), for 3/8" dia. shaft	13-0150	1
21	Spring, 7/8 OD x 4" long	13-0152	1
22	Washer, 3/8 size	11-0035	1
23	Nut, 3/8 - 24 threads	11-0205	3
24	Grip cover, 3/8" dia.	13-0155	1

## Controls and Inverter Box — # 96-0031



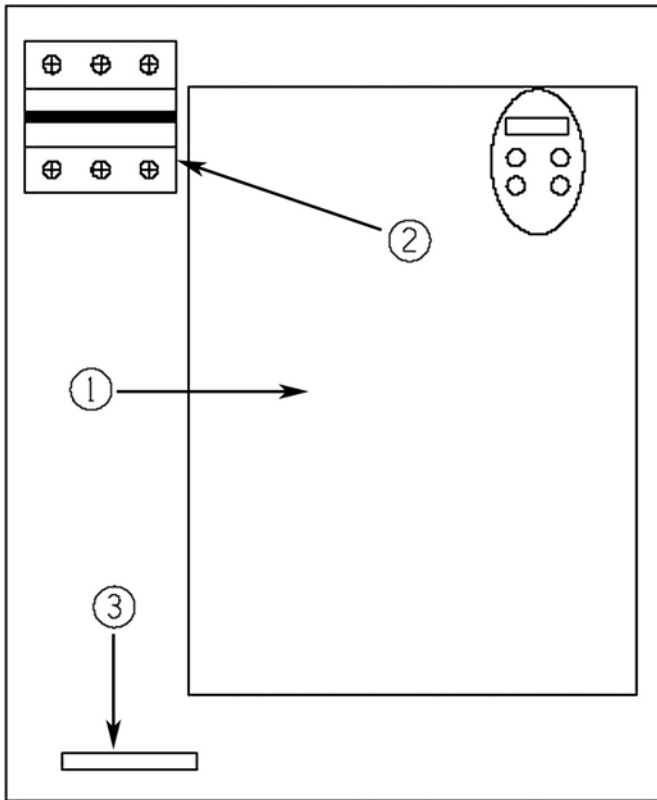
ITEM	DESCRIPTION	PART #	QTY
1	Steel Enclosure	23-0051	1
2	480 Volt Flanged Inlet	23-0054	1
3	On/Off Switch / Circuit Breaker	23-0053	1
4	Control Box	23-0052	1
5	Complete Inverter Box w/Inverter and Control Box	96-0031	1
6	Wire Strain Relief	24-0024	1
7	Quick Disconnect	23-0056	1
8	Hour Meter	23-0061	1

## Inverter Box Side View



ITEM	DESCRIPTION	PART #	QTY
1	Control Box Wire Strain Relief	23-0059	1
2	Cover Vent	25-0076	2
3	Inverter to Motor Connection Plug	23-0056	1
4	On/Off Switch	23-0053	1
5	480 Volt Flanged Inlet	23-0054	1
6	Hour Meter	23-0061	1

## Inside Inverter Box — # 96-0031

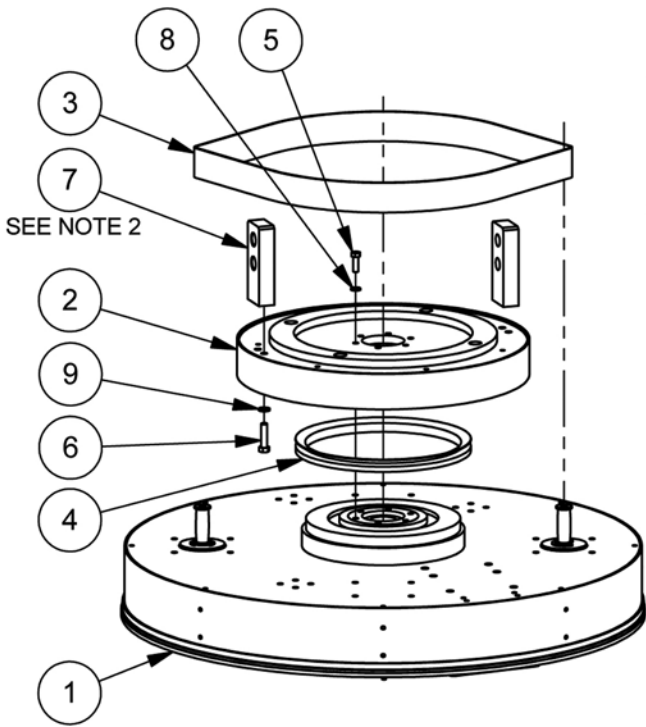


ITEM	DESCRIPTION	PART #	QTY
1	Inverter	23-0055	1
2	On/Off Switch / Circuit Breaker	23-0053	1
3	Bus Bar	23-0060	1

BACKPAN LAYOUT



## Drum Drive Unit — # 96-0029



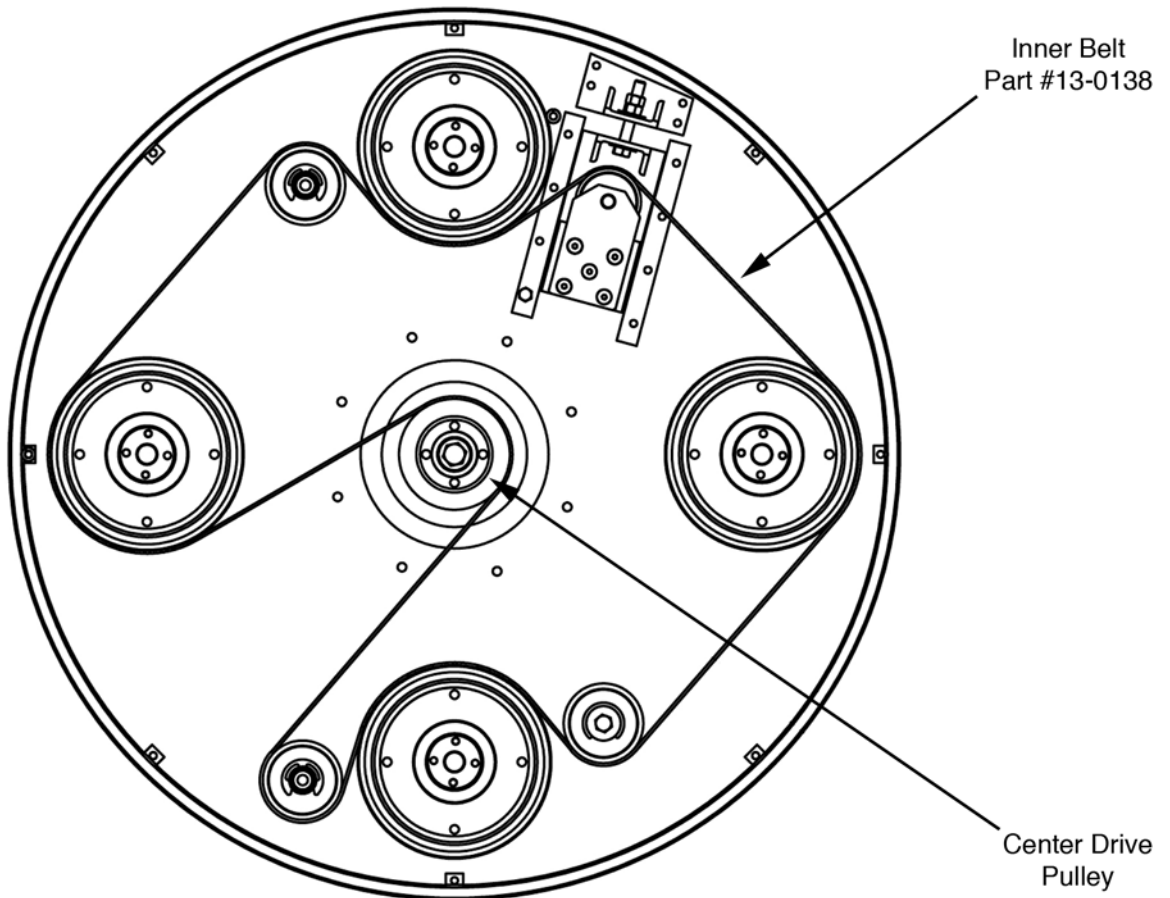
**NOTES:**

1. THIS DWG SERVES TO PRIMARILY ILLUSTRATE HOW PARTS/ COMPONENTS FIT TOGETHER FOR THE ASSEMBLY OF THIS UNIT. IT MAY NOT NECESSARILY REFLECT THE AS-BUILT STAGES AND/OR HARDWARES ASSIGNED TO THE COMPONENTS.
2. INSTALL POSTS WITH THE BIG HOLES' COUNTERSINK FEATURE FACING OUTWARD.

ITEM	DESCRIPTION	PART #	QTY
1	Drum assy	96-0033	1
2	Motor base assy	53-0023	1
3	Belt (1-7/8 W x 59-3/4" L)	13-0139	1
4	Seal (V-ring), 225 ID x 25mm width	13-0125	1
5	Screw (hex head), 5/16 - 18 x 1, grade 8	11-0192	6
6	Screw (hex head), 3/8 - 16 x 1-1/2	11-0089	4
7	Post, 1 x 2 x 5" long	51-0156	2
8	Washer (split lock), 5/16	11-0127	6
9	Washer (split lock), 3/8	11-0129	4

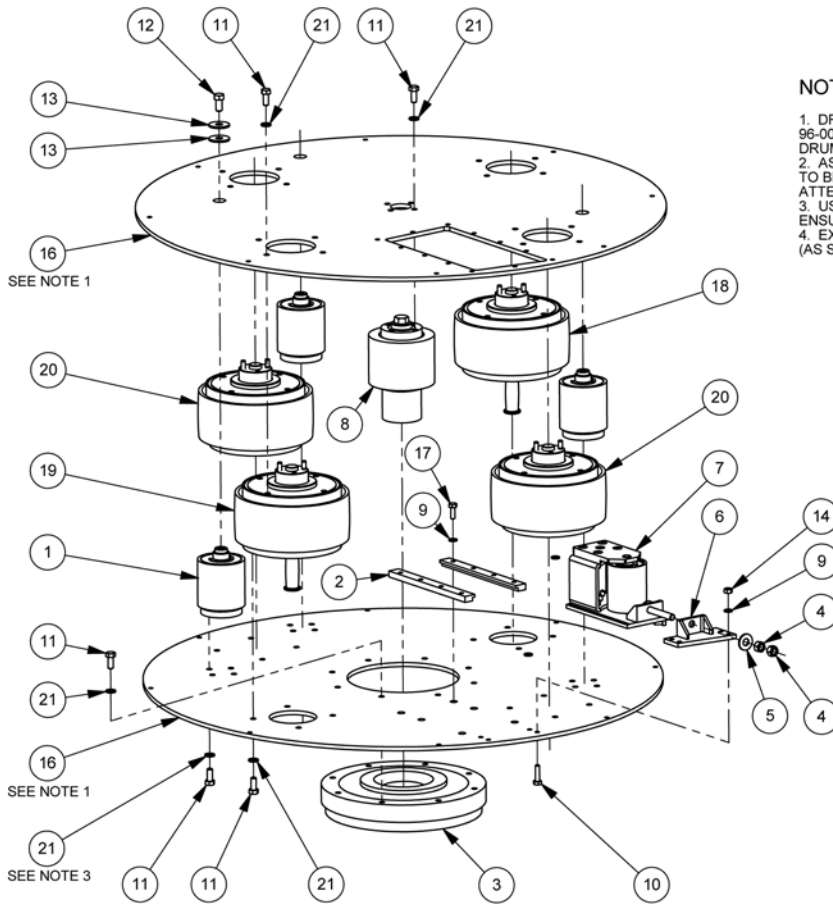
REV B

### Belt Routing



ATTENTION: BELT'S GREY COLORED SIDE TO FACE TOWARD CENTER DRIVE PULLEY.

## Drum Assembly — # 96-0033



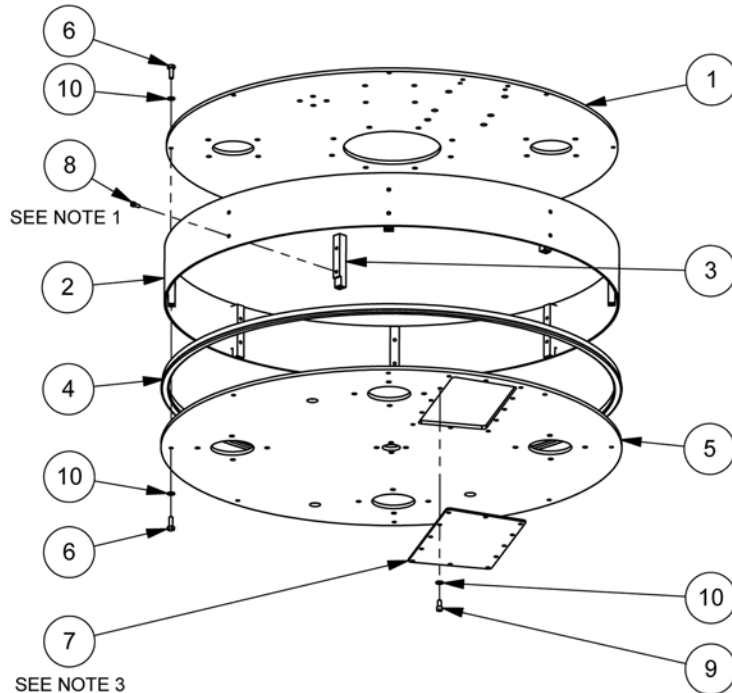
### NOTES:

1. DRUM TOP AND BOTTOM PLATE ARE COMPONENTS OF DRUM ENVELOPE (PART # 96-0021). FOR ILLUSTRATION CLARITY OF HOW PARTS FIT TOGETHER, NOT ALL OF DRUM ENVELOPE'S PARTS ARE BEING SHOWN.
2. ASSY'S DRIVE BELT IS NOT SHOWN HERE DUE TO SPACE CONSTRAINTS. REFER TO BELT ROUTING ILLUSTRATION FOR BELT LAYOUT ON ASSY. ATTENTION: BELT'S GREY COLORED SIDE TO FACE TOWARD CENTER DRIVE PULLEY.
3. USAGE OF INDICATED WASHERS FOR IDLERS INSTALLATION ARE MANDATORY TO ENSURE SCREWS' ENDS WILL NOT TOUCH ROTATING BEARINGS UNDERNEATH.
4. EXCEPT AS NOTED IN NOTE 3, SECURE INDICATED SCREWS WITH LOCK WASHERS (AS SHOWN) OR MEDIUM STRENGTH THREAD LOCKING COMPOUND (IE. LOCTITE 242).

ITEM	DESCRIPTION	PART #	QTY
1	Idler assy	96-0019	3
2	Tensioner sliding track	51-0014	2
3	Bearing assy (motor base and drum connection)	96-0022	1
4	Nut, 3/8 - 16	11-0124	2
5	Washer (SAE), 3/8	11-0126	1
6	Tensioner stationary anchor	53-0017	1
7	Tensioner sliding unit assy	96-0012	1
8	Pulley (center drive) assy	96-0018	1
9	Washer (split lock), 1/4	11-0069	10
10	Screw (hex head), 1/4 - 20 x 1	11-0121	4
11	Screw (hex head), 5/16 - 18 x 3/4, grade 8	11-0193 see note 4	52
12	Screw (hex head), 3/8 - 16 x 3/4	11-0130	3
13	Washer, 3/8	11-0035	6
14	Nut, 1/4 - 20	11-0123	4
(hidden)	Belt	13-0138 see note 2	1
16	Drum top/bottom plate	96-0021 see note 1	1
17	Screw (hex head), 1/4 - 20 x 3/4	11-0133	6
18	Cutter head pulley assy (with flanged top pulley)- cast unit	96-0041	1
19	Cutter head pulley assy (with insert-flanged top pulley)- cast unit	96-0042	1
20	Cutter head pulley assy- cast unit	96-0040	2
21	Washer (split lock), 5/16	11-0127	56

REV B

## Drum Envelope — # 96-0021



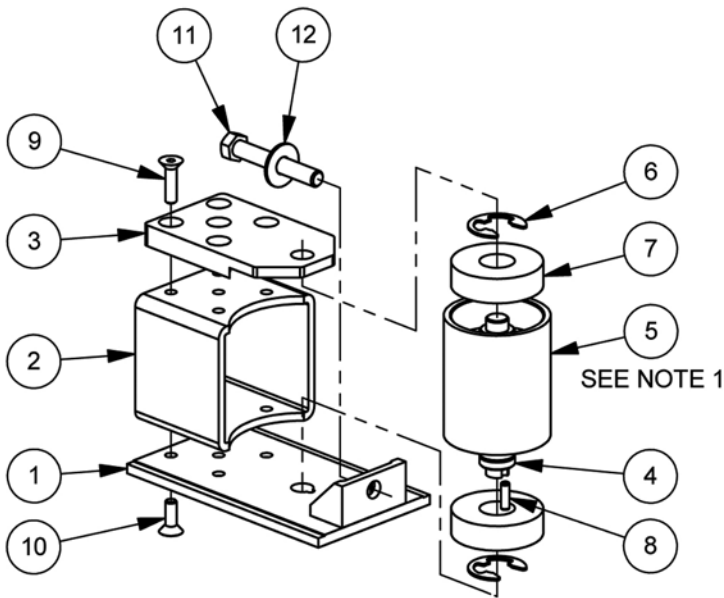
ITEM	DESCRIPTION	PART #	QTY
1	Drum top plate	51-0024	1
2	Drum side wall	53-0019	1
3	Spacer bar	51-0022	8
4	Seal (edge trim)	03-0001	1
5	Drum bottom plate	51-0046	1
6	Screw (hex head), 1/4 - 20 x 3/4	11-0133	16
7	Cover plate (tensioner access hole)	51-0026	1
8	Screw (socket head), #10 - 24 x 1/2	11-0149	16
9	Screw (socket head), 1/4 - 20 x 1/2	11-0164	12
10	Washer (split lock), 1/4	11-0069	28

REV A

### NOTES:

1. SECURE INDICATED SCREW(S) WITH A MEDIUM STRENGTH THREAD LOCKING COMPOUND (IE. LOCTITE 242).
2. SEAL JOINT BETWEEN DRUM SIDE WALL AND TOP PLATE, AS WELL AS SPACER BARS, WITH SILICONE.
3. SEAL PERIMETER OF COVER PLATE WITH SILICONE (AFTER ATTACHMENT TO DRUM BOTTOM PLATE).

## Tension Sliding Unit — # 96-0012



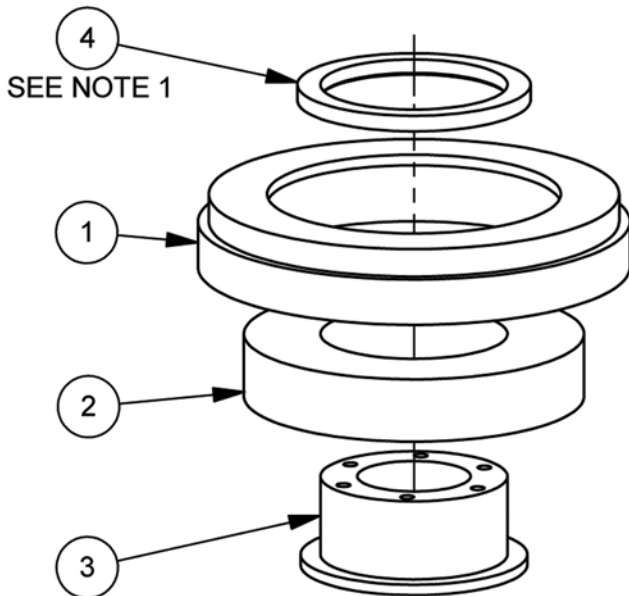
ITEM	DESCRIPTION	PART #	QTY
1	Tensioner sliding base (w/ anchor block)	53-0016	1
2	Tensioner height support block	51-0043	1
3	Tensioner top plate	51-0012	1
4	Shaft, .787" dia.	51-0017	1
5	Idler, 2-3/8" dia. x 2-7/8" high	51-0018	1
6	Retaining ring (E-style)- for 7/8" dia. shaft	13-0137	2
7	Bearing, 20 ID x 52 OD x 15 H (mm)	13-0122	2
8	Pin (dowel), 3/16" dia. x 5/8" long	13-0133	1
9	Screw (flat head, hex drive), 1/4 - 20 x 1	11-0120	5
10	Screw (flat head, socket head), 1/4 - 20 x 3/4	11-0140	5
11	Bolt (hex head), 3/8 - 16 x 2-1/2	11-0122	1
12	Washer (SAE type), 3/8 size	11-0126	1

REV A

### NOTES:

1. IDLER'S END WITH SHALLOW [INTERNAL] COUNTERBORE FACES TOWARD SLIDING BASE.

## Bearing Assembly (Drum/Motor Base Connection) — Part # 96-0022



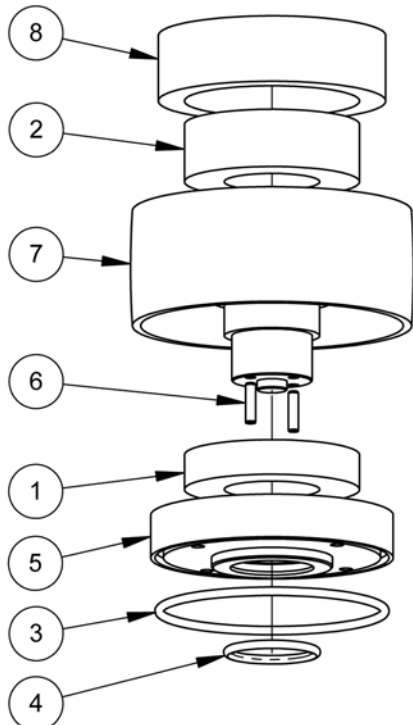
ITEM	DESCRIPTION	PART #	QTY
1	Bearing housing (rotating drum connection, outer housing)	51-0006	1
2	Bearing, 110 ID x 200 OD x 38 mm high	13-0123	1
3	Bearing housing (rotating drum connection, inner housing)	51-0007	1
4	Spacer ring, 4.332 ID x 5.4 OD x 3/8" thick	51-0048	1

REV A

### NOTES:

1. FOR ASSEMBLY EASE, INSTALL SPACER RING WITH THE CHAMFERED SIDE (ON INNER DIAMETER) FACING DOWN TOWARD BEARING.

### Cutter Head Pulley Assembly (Cast Unit) — # 96-0040



SEE NOTE 1

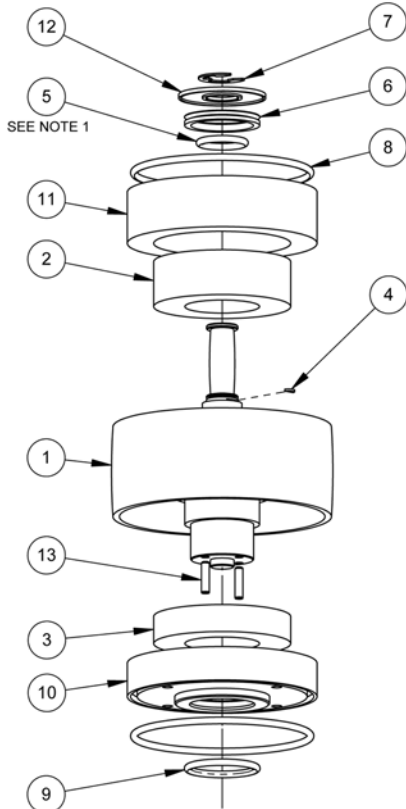
ITEM	DESCRIPTION	PART #	QTY
1	Bearing, 60 ID x 110 OD x 22 mm high	13-0119	1
2	Bearing, 60 ID x 110 OD x 36.5 mm high	13-0120	1
3	O-ring, 5-3/8 ID x 5-3/4 OD x 3/16" width	13-0130	1
4	O-ring, 2 ID x 2-3/8 OD x 3/16" width	13-0131	1
5	Bearing housing (cutter head, bottom)	51-0001	1
6	Pin (dowel), 1/4 dia. x 1" long	13-0134	2
7	Cutter head pulley- cast unit	51-0191-3	1
8	Bearing housing (cutter head, top)	51-0002	1

REV --

#### NOTES:

1. INDICATED O-RING TO BE INSERTED INTO PROVIDED INTERNAL GROOVE ON BODY OF BOTTOM BEARING HOUSING.

### Cutter Head Pulley Assembly (With Flanged Top Pulley, Cast Unit) — # 96-0041



SEE NOTE 1

SEE NOTE 1

ITEM	DESCRIPTION	PART #	QTY
1	Cutter head pulley (w/ flanged top pulley)- cast unit	51-0191-1	1
2	Bearing, 60 ID x 110 OD x 36.5 mm high	13-0120	1
3	Bearing, 60 ID x 110 OD x 22 mm high	13-0119	1
4	Key (woodruff, full radius), .063 thick x .375" dia.	13-0140	1
5	O-ring, 1-1/4 ID x 1-5/8 OD x 3/16" width	13-0132	1
6	Seal (V-ring), 45 ID x 9 mm high	13-0124	1
7	Retaining ring (E-style)- for 1" shaft	13-0135	1
8	O-ring, 5-3/8 ID x 5-3/4 OD x 3/16" width	13-0130	2
9	O-ring, 2 ID x 2-3/8 OD x 3/16" width	13-0131	1
10	Bearing housing (cutter head, bottom)	51-0001	1
11	Bearing housing (cutter head, w/ top pulley provision)	51-0003	1
12	Cover disc (dust seal), 2.75" dia.	51-0027	1
13	Pin (dowel), 1/4 dia. x 1" long	13-0134	2

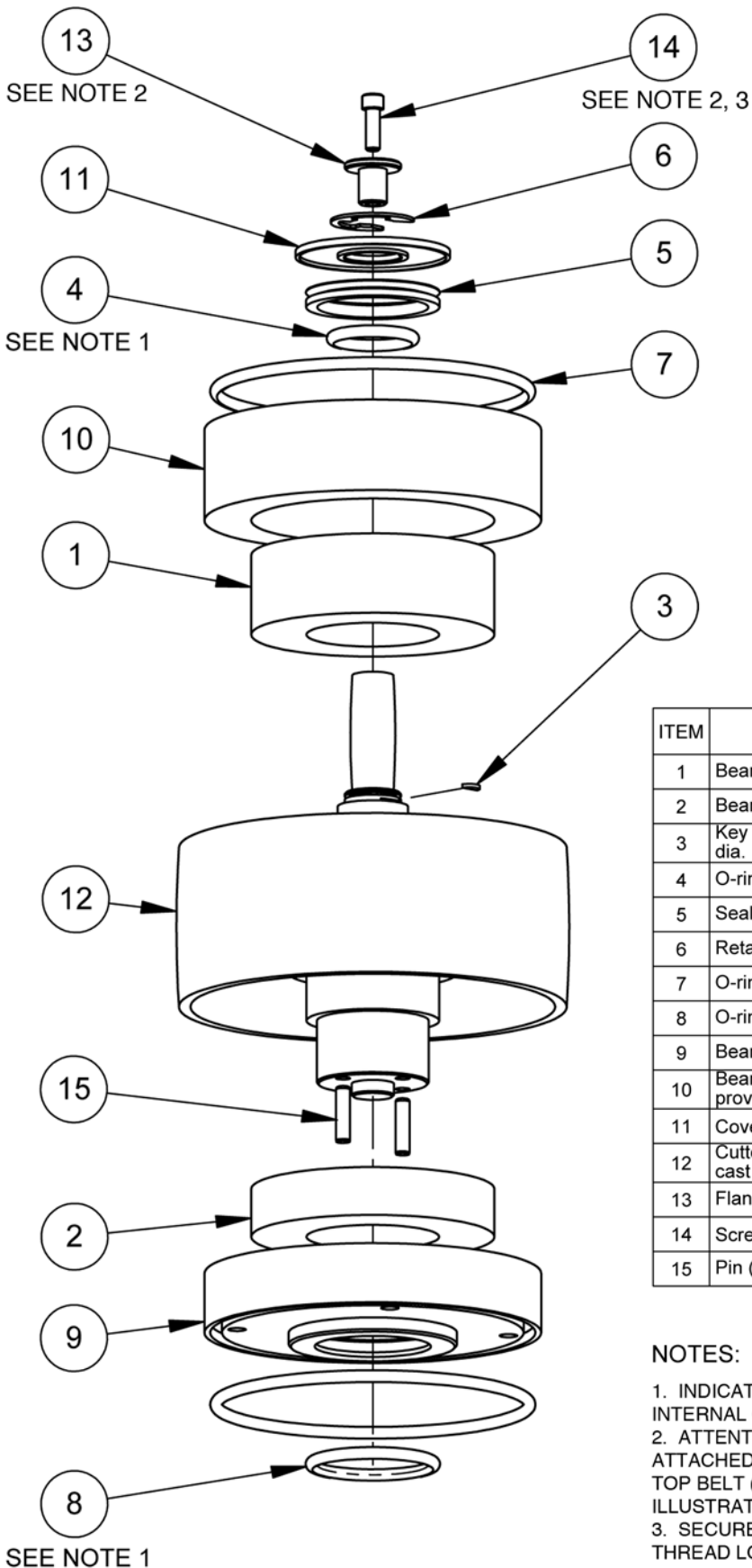
REV --

#### NOTES:

1. INDICATED O-RING TO BE INSERTED INTO PROVIDED INTERNAL GROOVE ON BODY OF BEARING HOUSING.



## Cutter Head Pulley Assembly (With Insert-Flanged Top Pulley, Cast Unit) — # 96-0042



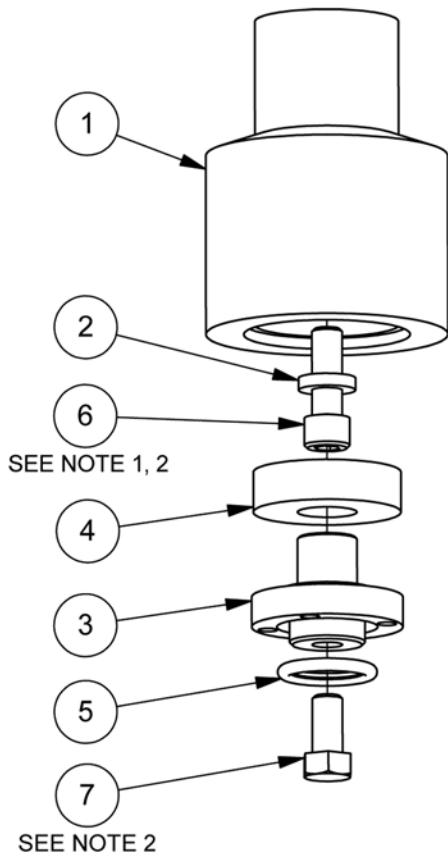
ITEM	DESCRIPTION	PART #	QTY
1	Bearing, 60 ID x 110 OD x 36.5 mm high	13-0120	1
2	Bearing, 60 ID x 110 OD x 22mm high	13-0119	1
3	Key (woodruff, full radius), .063 thick x .375" dia.	13-0140	1
4	O-ring, 1-1/4 ID x 1-5/8 OD x 3/16" width	13-0132	1
5	Seal (V-ring), 45 ID x 9 mm high	13-0124	1
6	Retaining ring (E-style)- for 1" shaft	13-0135	1
7	O-ring, 5-3/8 ID x 5-3/4 OD x 3/16" width	13-0130	2
8	O-ring, 2 ID x 2-3/8 OD x 3/16" width	13-0131	1
9	Bearing housing (cutter head, bottom)	51-0001	1
10	Bearing housing (cutter head, w/ top pulley provision)	51-0003	1
11	Cover disc (dust seal), 2.75" dia.	51-0027	1
12	Cutter head pulley (w/ non-flanged top pulley)- cast unit	51-0191-2	1
13	Flange insert (for top drive pulley)	51-0157	1
14	Screw (socket head), 1/4 - 20 x 3/4"	11-0169	1
15	Pin (dowel), 1/4 dia. x 1" long	13-0134	2

REV --

**NOTES:**

1. INDICATED O-RING TO BE INSERTED INTO PROVIDED INTERNAL GROOVE ON BODY OF BEARING HOUSING.
2. ATTENTION: FLANGE INSERT AND SCREW TO BE ATTACHED AFTER INSTALLATION OF GRINDER HEAD'S TOP BELT (PART # 13-0139). SEE DRUM DRIVE UNIT ILLUSTRATION FOR REFERENCE.
3. SECURE INDICATED SCREW WITH MEDIUM STRENGTH THREAD LOCKING COMPOUND (IE, LOCTITE 242).

## Pulley Assembly (Center Drive) — # 96-0018



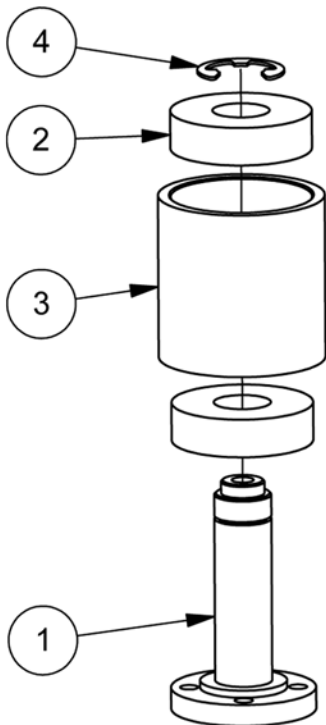
ITEM	DESCRIPTION	PART #	QTY
1	Pulley (center drive), 4" dia.	51-0101	1
2	Washer (custom made), .5 ID x .94 OD x .2" thk	51-0102	1
3	Shaft (center drive pulley support)	51-0039	1
4	Bearing, 25 ID x 62 OD x 17mm high	13-0121	1
5	O-ring, 1-1/4 ID x 1-5/8 OD x 3/16" width	13-0132	1
6	Bolt (socket head), 1/2 - 13 x 1-1/2"	11-0119	1
7	Bolt (hex head), 1/2 - 13 x 1"	11-0147	1

REV A

### NOTES:

1. INDICATED SCREW IS USED FOR ATTACHING PULLEY ASSY TO MOTOR'S SHAFT.
2. SECURE INDICATED SCREW(S) USING MEDIUM STRENGTH THREAD LOCKING COMPOUND.

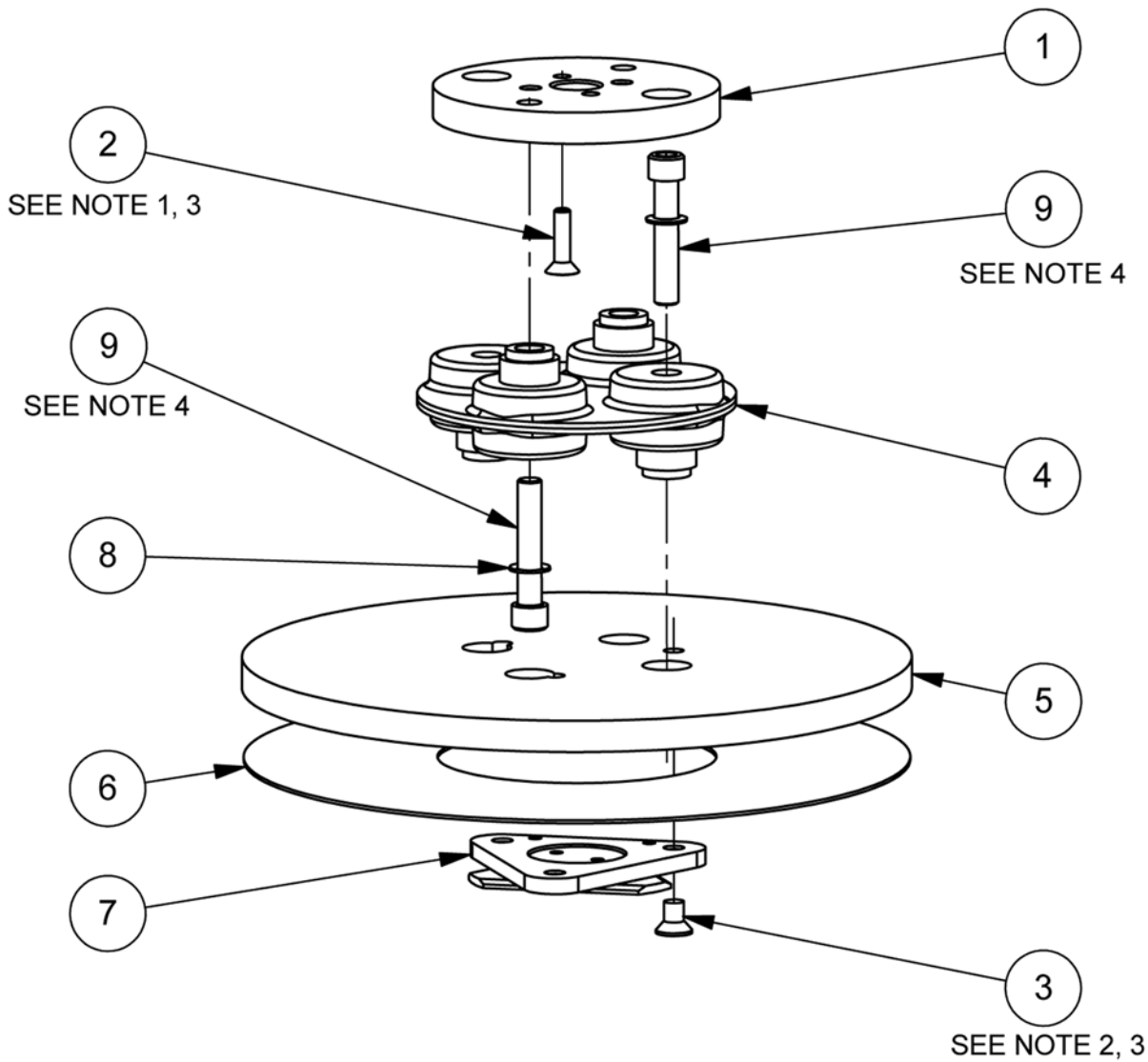
## Idler Assembly — # 96-0019



ITEM	DESCRIPTION	PART #	QTY
1	Shaft (for main drive idler), .984" dia.	51-0021	1
2	Bearing, 25 ID x 62 OD x 17 mm high	13-0121	2
3	Idler (sleeve roller), 2-7/8 dia. x 2-7/8 high	51-0020	1
4	Retaining ring (E-style)- for 1" shaft	13-0135	1

REV --

## Cutter Head Floating Head Unit — # 96-0027



ITEM	DESCRIPTION	PART #	QTY
1	Cutter head floating head top plate	51-0140	1
2	Screw (flat head, hex socket), 1/4 - 20 x 1	11-0120	2
3	Screw (flat head, Phillips), 5/16 - 18 x 1/2	11-0206	3
4	Flexible coupling	13-0056	1
5	Cutter head floating head bottom plate	51-0139	1
6	Velcro mat, 10-1/2 OD x 4-3/8 ID x .050" thick	13-0141	1
7	Cutter head triangle holder assy	96-0025	1
8	Washer (Belleville, serrated), .413 ID x .630 OD	11-0162	4
9	Screw (socket head), 3/8 - 24 x 2	11-0147	4

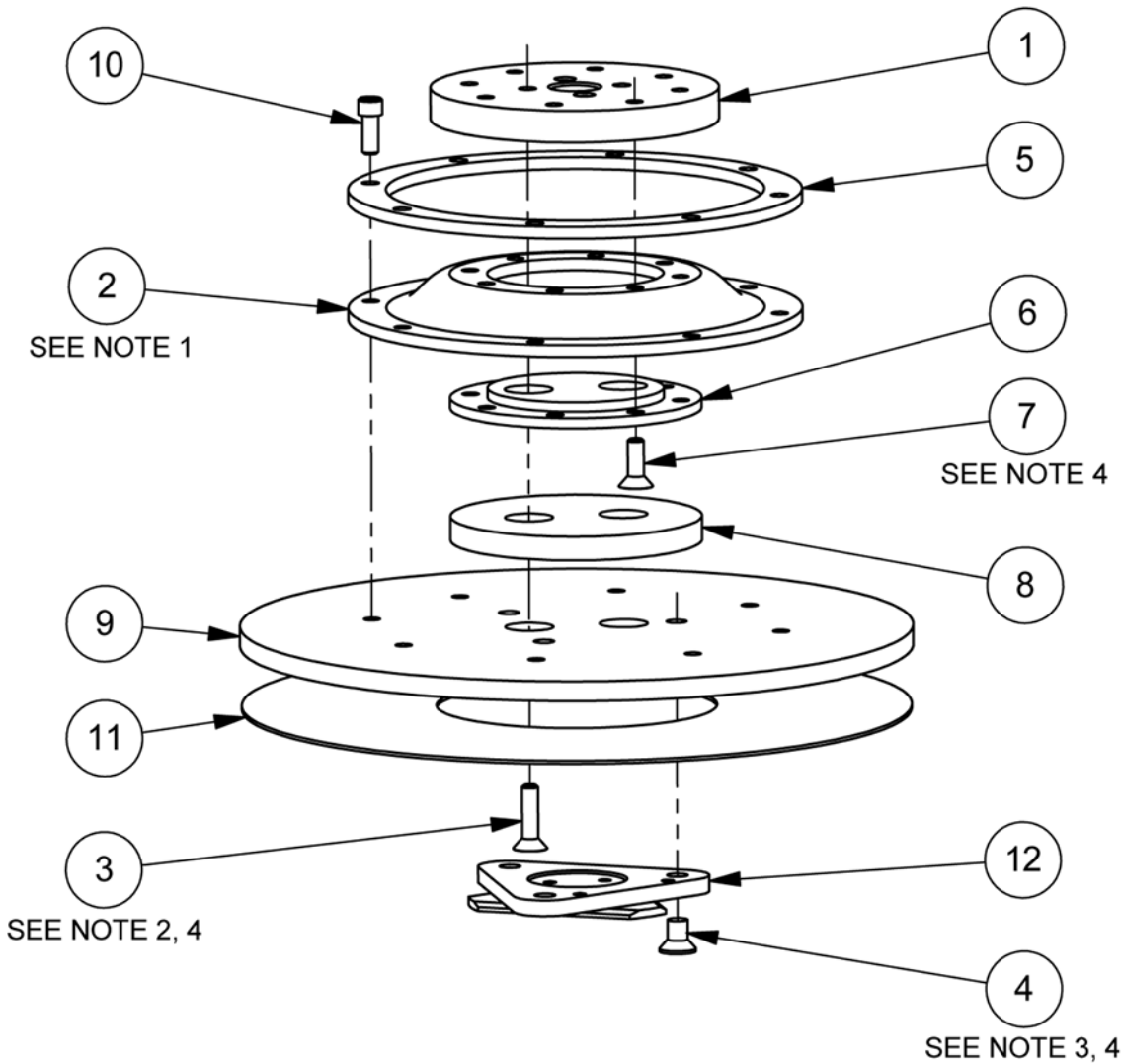
REV B

### NOTES:

2. INDICATED SCREW(S) TO BE USED FOR ATTACHING ASSEMBLY TO CUTTER HEAD SHAFT.
2. INDICATED SCREW(S) HAS AN "UNDERCUT" HEAD FEATURE TO AVOID POSSIBLE FITTING INTERFERENCE PROBLEMS.
3. SECURE INDICATED SCREW(S) WITH A MEDIUM STRENGTH THREAD LOCKING COMPOUND (IE. LOCTITE 242).
4. SECURE INDICATED SCREW(S) WITH A HIGH STRENGTH THREAD LOCKING COMPOUND (IE. LOCTITE 271).



## Cutter Head Rigid Head Unit — # 96-0028



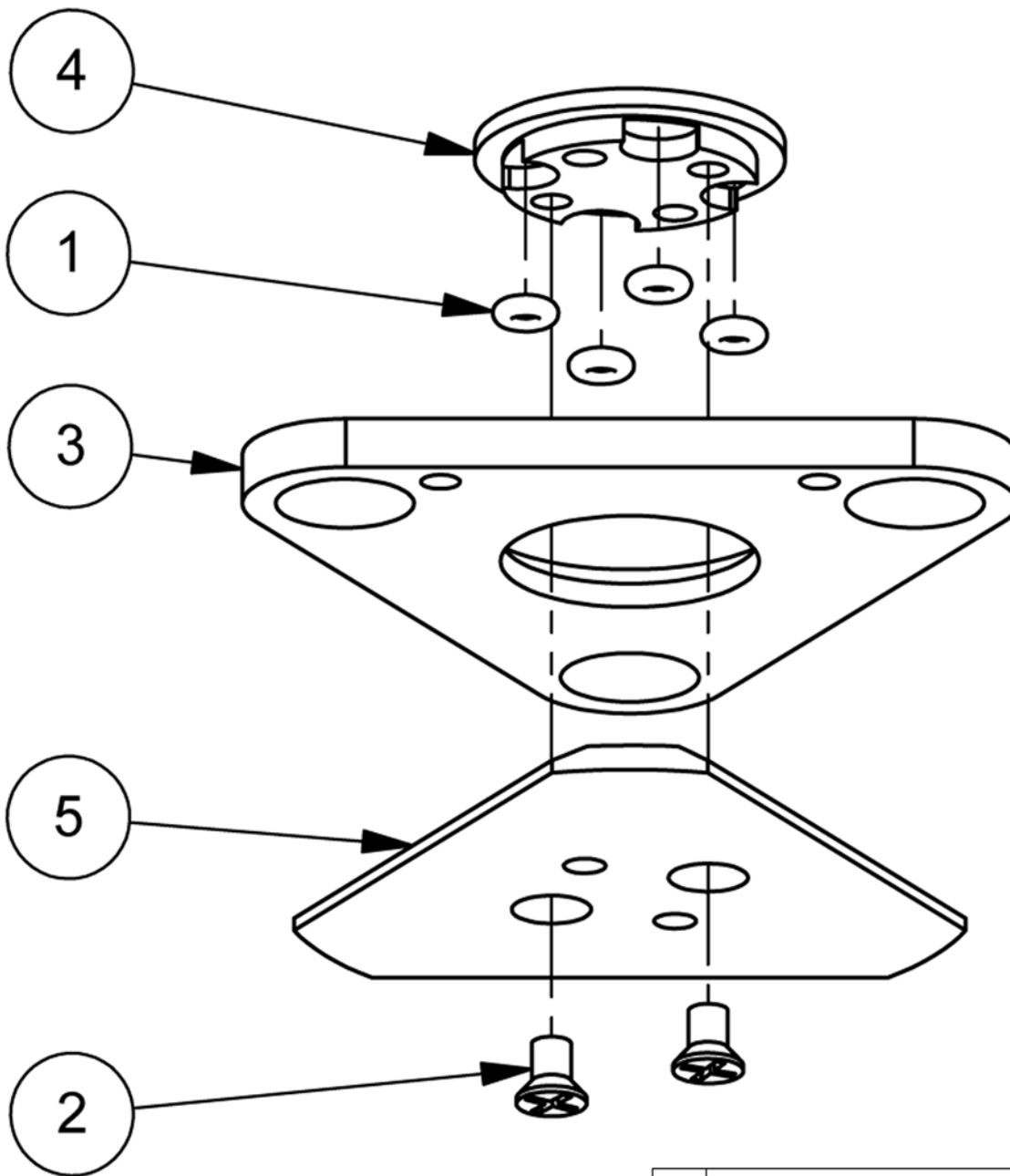
ITEM	DESCRIPTION	PART #	QTY
1	Cutter head rigid head top plate	51-0143	1
2	Cutter head polycord discs	see note 1	1
3	Screw (flat head, hex socket), 1/4 - 20 x 1	11-0120	2
4	Screw (flat head, Phillips), 5/16 - 18 x 1/2	11-0206	3
5	Cutter head rigid head polycord ring	51-0145	1
6	Cutter head rigid head polycord hub	51-0144	1
7	Screw (flat head, hex socket), 1/4 - 20 x 3/4	11-0140	8
8	Cutter head rigid head rubber spring disc	13-0116	1
9	Cutter head rigid head bottom plate	51-0146	1
10	Screw (socket head), 1/4 - 20 x 5/8	11-0141	8
11	Velcro mat, 10-1/2 OD x 4-3/8 ID x .050" thick	13-0141	1
12	Cutter head triangle holder assy	96-0025	1

REV B

**NOTES:**

1. ITEM 2 CONSISTS OF A BUILD-UP OF 3 LAYERS OF POLYCORD DISCS AS FOLLOWED:  
 1 PIECE OF PART # 13-0117 (.043" THICK) STACKED ON TOP OF 2 PIECES OF PART # 13-0118 (.073" THICK).  
 INSTALLATION REF: ITEM 2 IS TO BE INSTALLED WITH THE THINNER DISC WITH ITS BLACK COATED SIDE ORIENTED TOWARD THE ASSEMBLY'S TOP PLATE.
2. INDICATED SCREW(S) TO BE USED FOR ATTACHING ASSEMBLY TO CUTTER HEAD SHAFT.
3. INDICATED SCREW(S) HAS AN "UNDERCUT" HEAD FEATURE TO AVOID POSSIBLE FITTING INTERFERENCE PROBLEMS.
4. SECURE INDICATED SCREW(S) WITH A MEDIUM STRENGTH THREAD LOCKING COMPOUND (IE. LOCTITE 242).

## Cutter Head Triangle Holder Assembly — # 96-0025



SEE NOTE 1

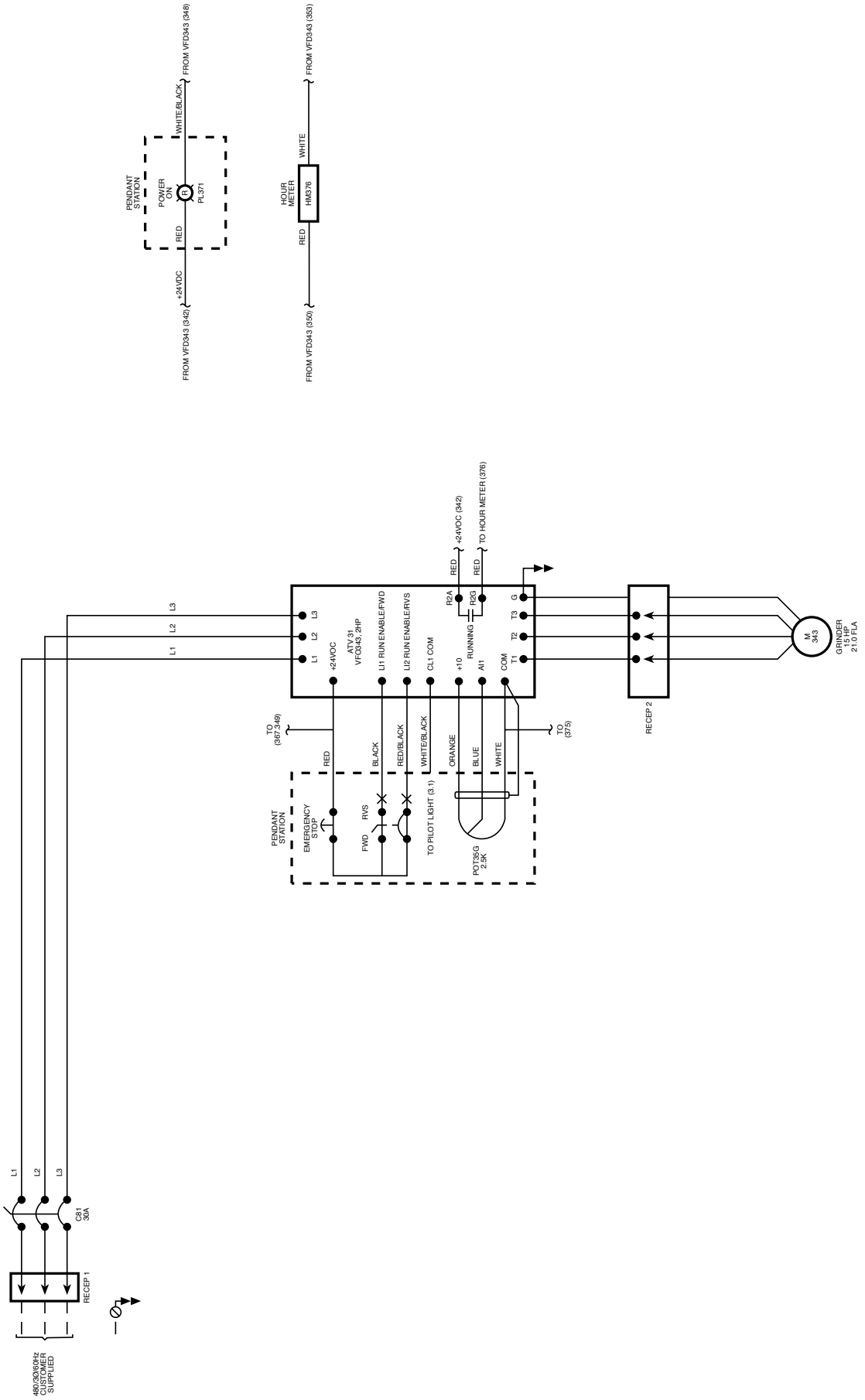
ITEM	DESCRIPTION	PART #	QTY
1	O-ring, 1/8 ID x 5/16 OD x 3/32" width	13-0142	4
2	Screw (flat head, Phillips) #10 - 24 x 5/16	11-0142	2
3	Triangle holder base	51-0138	1
4	Triangle holder center rotator	51-0110	1
5	Triangle holder hold-down	51-0132	1

REV A

**NOTES:**

1. SCREW(S) HAVE AN "UNDERCUT" HEAD FEATURE TO AVOID POSSIBLE PARTS FITTING INTERFERENCE PROBLEMS. ATTACH INDICATED SCREWS TO CENTER ROTATOR USING A HIGH STRENGTH THREAD LOCKING COMPOUND (IE, LOCTITE 271).

# Wiring Schematic

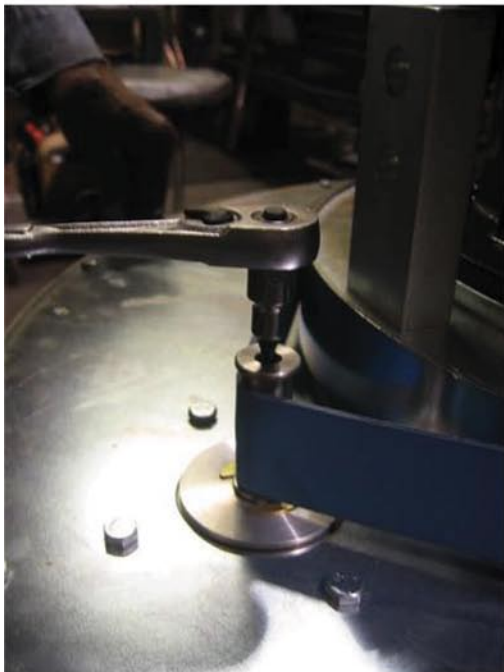


# PREDATOR GRINDER UPPER BELT CHANGE

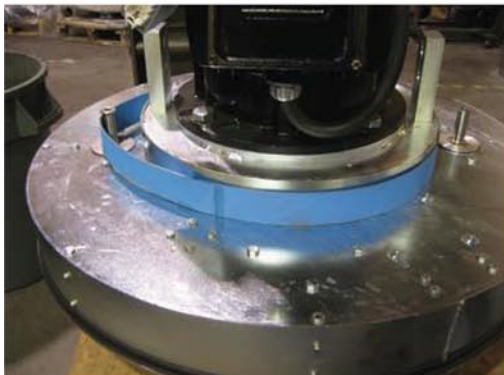
STEP 1 – Remove plastic dust shroud.



STEP 2 – Remove screw and washers on one side.



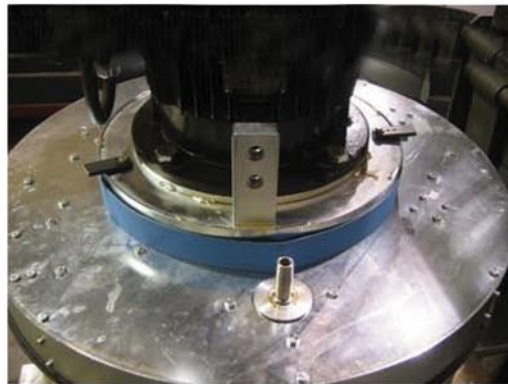
STEP 3 – Place the new belt over the motor and one pulley loosely.



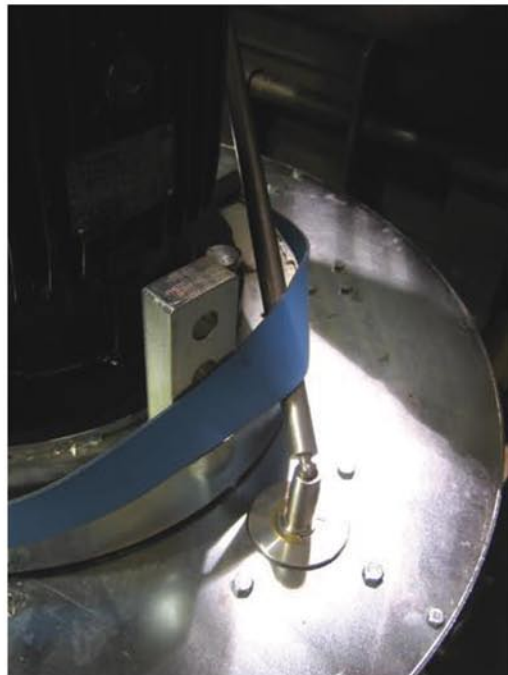
STEP 4 – Screw in the belt hold down on both sides of the motor.



Finished hold downs on both sides.



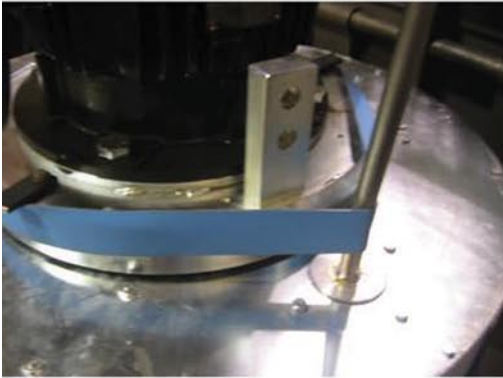
STEP 5 – Insert bar through belt and insert round end into the screw hole.





# PREDATOR GRINDER UPPER BELT CHANGE

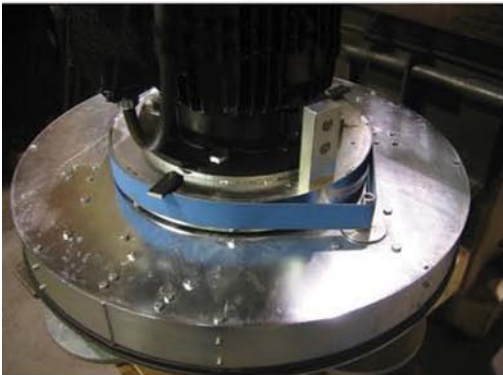
STEP 6 – Pull back on the bar and slip belt over the shaft.



STEP 7 – Use flat head screw driver to pull remaining belt over the lip.



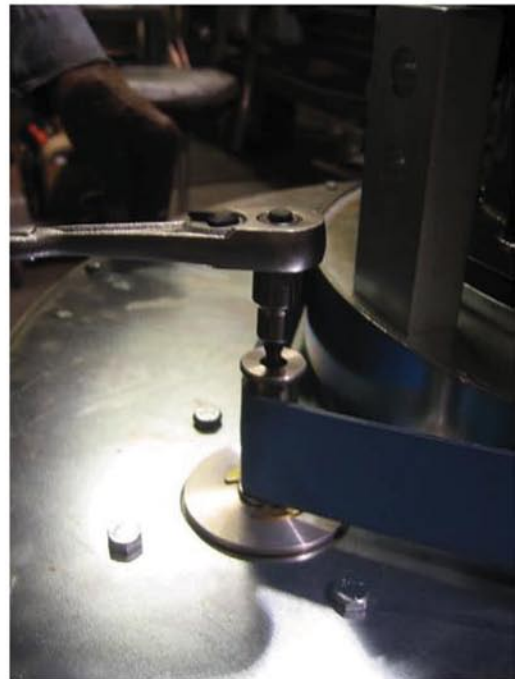
Belt installation complete.



STEP 8 – Add Loc-tite 242 supplied with kit to the screw threads.



STEP 9 – Replace the screw and washer.



STEP 10 – Remove belt guides and replace dust shroud.



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